Montana Fish, Wildlife & Parks

Region 2 Headquarters
3201 Spurgin Road
Missoula, MT 59804-3101
Phone 406-542-5500
April 22, 2010

Dear Interested Citizen:

Enclosed you will find for your review, the Draft Environmental Assessment (EA) for a Montana Fish, Wildlife & Parks (FWP) proposal to relocate western pearlshell mussels within the Blackfoot River Basin. This relocation project would mitigate the effects of channel disturbance associated with the Clearwater Fish Barrier Modification/Removal Project (a.k.a., the Emily-A dam) between Seeley Lake and Lake Inez on the Clearwater River (Missoula County) by moving mussels away from the immediate area of disturbance. The Clearwater fish barrier project is an important native fish recovery project, and mussels removed from the impact area would be used to reestablish mussel populations in restored habitat in three other tributaries to the Blackfoot River (portions of Powell and Lewis & Clark counties). The project fits within the context of Blackfoot River restoration actions undertaken over the last 20 years.

A Draft Environmental Assessment (EA) for this proposal will be available for review and comment for 30 days beginning Friday, April 30, 2010. You may view the EA at FWP's website http://fwp.mt.gov ("Recent Public Notices") or request a copy by mailing FWP, 3201 Spurgin Road, Missoula, MT 59804; phoning 406-542-5540; or emailing shrose@mt.gov.

Comments should be directed to Ron Pierce by mail at the address above; phone to 406-542-5532; or email to rpierce@mt.gov. Comments must be received no later than 5 p.m. on May 31, 2010.

As part of the decision making process under MEPA, I expect to issue the Decision Notice for this EA soon after the end of the comment period.

Sincerely,

Mack Long
Regional Supervisor

ML/sr

Montana Fish, Wildlife and Parks
Region 2 Headquarters, 3201 Spurgin Road, Missoula, MT 59804
(406) 444-5500

ENVIRONMENTAL ASSESSMENT

PART 1. PROPOSED ACTION DESCRIPTION

Project Title:	Western pearlshell mussel translocation project, Blackfoot River Basin, MT
Application Date:	April 28, 2010
Name, Address and Phone Number:	Montana Fish, Wildlife and Parks 3201 Spurgin Road Missoula, MT 59804 (406) 542-5500
Project Location:	Blackfoot River Basin, MT--Includes Clearwater River, and Chamberlain, Grantier Spring, and Monture creeks (Missoula, Lewis & Clark, and Powell counties)

Description of Project:

Montana's only trout stream mussel, the western pearlshell (*Margaritifera falcata*), has disappeared from many of our watersheds in relatively recent times (Stagliano 2009). Reasons for this decline are numerous and include the loss of their primary host fish (westslope cutthroat trout) and habitat degradation. Often, pearlshell populations are so disconnected from other suitable habitat areas that recruitment and recolonization by natural means are virtually impossible.

Photo 1. The Clearwater fish passage barrier (a.k.a., Emily-A dam) on the Clearwater River between Seeley Lake and Lake Alva. The mussels are located below the dam in the immediate area of anticipated disturbance.

Therefore, Montana Fish, Wildlife & Parks (FWP) proposes the translocation of approximately 1,500 individual *M. falcata* mussels of multiple size and age classes from an abundant viable population located in a ~ (approximate) 3-kilometer (approx. 1.9-mile) reach of the main stem Clearwater River (Missoula County) from the Clearwater fish passage barrier (a.k.a., Emily-A dam) to the inlet of Seeley Lake (estimated number ~3,200 individuals/km or ~5,000 per mile, Stagliano unpublished). Removal of mussels would focus on the upper 1-km (0.62-mile) of this section, and individuals would be transported to three tributary sites (500 mussels per site) within the Blackfoot Basin. Relocation from the upper 1-km portion of this mussel population is considered an important conservation effort related the Clearwater Fish Barrier Modification/ Removal project (MFWP 2009a, 2009b) because the greatest potential impacts from fine sediment deposition and increased turbidity are expected in this reach.

Additional mussels from throughout the 3-km occupied reach would be temporarily relocated within the Clearwater River to the reach immediately upstream of the fish passage project area. This site also currently supports *M. falcata* and would be upstream of anticipated short-term sediment impacts. The number of mussels temporarily relocated would not exceed 2,000 and would depend largely on logistic feasibility. Once the fish passage project is completed, mussels relocated within the Clearwater River would be returned to originally occupied habitats.

The Emily-A fish passage project (Photo 1) is an important restoration action planned for 2010, which will provide upstream fish passage for adfluvial bull trout and westslope cutthroat trout (MFWP 2009a, 2009b). When completed, the project will reconnect the upper and lower Clearwater chain-of-lakes system and provide access to spawning areas in Marshall Creek and the West Fork Clearwater River systems (for background, see Pierce et al. 2008, pages 84-120). There is an expectation that mussels immediately downstream of project would be impacted by benthic smothering and/or other direct disturbances caused by the construction phases of the Emily-A fish passage project.

Photo 2. Western pearlshell mussels in the Clearwater River.

Relocating mussels from areas of perceived threats to suitable safe habitat has been occurring in the US for more than 30 years (Cope and Waller 1995), and survival rates in monitored projects have averaged ~50% (ranging from 0-99%, median 30%). Improved methods have effectively increased relocated

mussel survivorship rates of target species from ~50% to ~90% under ideal circumstances (Peck et al. 2007). Peck et al. (2007) also deduced that the total number of mussels translocated mattered less than habitat suitability. Numbers of mussels translocated varied by species and the area of streambed being cleared, as most published translocation projects (all in eastern US) dealt with a complete transfer of an endangered species population from certain extirpation. Relocation methods varied, but most (43%) relocations were opportunistically conducted from July to September, presumably a period when reproductive stress is relatively low for this species and their metabolic rate is sufficient for effective reburrowing in the substrate (Cope and Waller 1995). Relocations of 500 individual mussels seemed to represent a very realistic number for new population establishment (Hubbs and Campbell 2009, pers. comm.) and fits within models of conservation biology assessments of minimum viable population number (Shaffer 1981, Soule 1987).

The source population is relatively abundant and has excellent viability when ranked by contemporary measures (A Rank, Nature Serve 2004) and is located in an area of the Clearwater River channel where planned future instream work is likely to impact the upper portion of the mussel population. Mussels smothered by sediments as little as 5 centimeters (2.0 inches) deep during dredging operations experienced 10-20% mortality (Vaughn and Taylor 1999), so it is likely that a portion of this population would die from elevated sediment (or other disturbance) if they are not translocated. There is little guidance on the methods for relocation or for monitoring the subsequent long-term status of relocated western pearlshell mussels compared with some eastern mussel species (unio_listserv 2009; see Luzier and Miller 2009); therefore this project is in a unique position to produce needed data on western pearlshell mussel relocation.

Additionally, there are no known reported fish disease or nuisance algae transfer cases due to a freshwater mussel transfer (Bartley 1998). Populations of sessile organisms (mussels) that remain separated for long periods of time can undergo genetic divergence (Mock et al. 2004), and lead to sub-populations and eventually speciation. Genetic differences between populations of *Margaritifera falcata* from western states and east and west of the continental divide in Montana were found to be negligable (Chong et al. 2009; Karen Mock, University of Southern Utah, Cedar City, pers. comm.); therefore FWP is confident that movement of populations from within the same watershed would contain similar genetic makeup.

Alternative 1: Proposed Action (Preferred alternative)--Inter-stream translocation

The purpose of the proposed inter-stream relocation is to re-establish western pearlshell populations into three tributaries of the Blackfoot River. The tributaries differ physically but all seem to possess the basic physical features associated with pearlshell habitat, i.e., stable C and E-type channels (Rosgen Classification 1996). In addition, these three streams provide connectivity (unaltered fish passage) and support the native fish host (westslope cutthroat trout or hybrids) necessary for both the completion of mussel life cycle and dispersal of larval mussels. The first proposed site is Grantier Spring Creek (Lewis & Clark County) near Lincoln. This stream is a 1st-order, Rosgen E-4 type, spring creek with stable groundwater inflows (4-5 cfs [cubic feet per second]) at the proposed relocation site. The second proposed site is Chamberlain Creek (Powell County)--a small 2nd-order, Rosgen B4-C4, basin-fed stream near

Ovando. This stream supports some of the highest concentration of westslope cutthroat trout spawning within the Blackfoot Basin. Both Grantier Spring Creek and Chamberlain Creek were severely degraded (or dewatered) prior to 1990; however, both have undergone restoration actions in the last 20-years including more than 15 years of vegetative recovery and now provide stable baseflows and "healthy" riparian environments. The third stream is Monture Creek (Powell County), also near Ovando. Monture Creek is a larger 4th-order basin-fed, Rosgen C3-C4 type channel. Of the three streams, only Monture Creek had previously been reported to contain western pearlshell mussels, although no live individuals or recent shells have been found (Stagliano, unpublished). Similar to the other streams, Monture Creek is now managed for riparian health at the proposed translocation site. Instream habitat conditions (e.g., channel morphometrics, substrate composition, flow, water temperature and chemical composition (pH, TDS, conductivity) are documented at the Chamberlain, Monture and Grantier Spring creeks. In addition, the three translocation sites have expressed increased densities of westslope cutthroat trout in recent years, and all are now perpetually protected by conservation easements with headwaters under public ownership.

Temporary relocation of additional mussels within the Clearwater River is simply a conservation measure to ensure that the viability of the population is maintained if short-term impacts of the Emily-A dam fish passage project were to be greater than anticipated.

Mussel Translocation Methods: Mussels collected from the Clearwater River (focused within 1-km downstream from Emily A dam) would be placed in stream-side holding tanks. While in the tanks, the pearlshells would be measured and assigned mussel tags for tracking purposes.

The project would be completed in July 2010. Prior to translocation, mussels would be purged in freshwater for a minimum of 72 hours with water exchanges every 12-24 hours. Following transit to the relocation sites in tanks with controlled water temperatures, the mussels would be randomly placed into one of two 2-m x 2-m (6.6-feet x 6.6-feet) grid systems constructed in-stream. These grids are divided into 1-m^2 (3.3-feet^2) cells, with a rebar pin placed in the center and the relocated mussels placed around the pin. Each cell would be given a unique number, and the numbers of individual mussels placed within each cell are recorded. Reintroduction sites would be thoroughly mapped, documented and periodically monitored as to the survival success of the western pearlshell individuals. FWP expects the sum of these investigations across a range of environments would help identify those conditions best suited to similar mussel conservation actions in the future.

a) Advantage--Establishing potential new pearlshell populations in the Blackfoot River watershed in streams where they have been presumed long extirpated, but where said streams have been restored for the native fish host.

b) Disadvantage--A longer distance translocation within the same basin, cross-stream contamination issues, and potential water chemistry stresses in the new streams.

Alternative 2: No Action

The no-action alternative assumes that no direct environmental intervention or restoration action would be undertaken before the dam removal/construction occurs. In considering this alternative, the questions that must be addressed are: Would mussels be killed during construction? How many mussels? And how long would it take for the mussel community to recover to a pre-construction/channel alteration state without human intervention? In FWP's estimation, most mussels immediately below Emily A dam would be killed during construction under the No Action Alternative. Based on recent mussel surveys, a conservative number of lost mussel individuals would be ~3,000 individuals within the first kilometer below the dam, and the time to recover this population would be greater than 50 years (based on age structure and size classes of *Margaritifera falcata* in other states, Howard and Cuffey 2006). This Clearwater River population is one of the strongest and most viable in the state, and losing any portion of it represents a significant number of individual mussels to lose on a statewide basis.

Alternative 3: Intra-Stream Translocation Only.

This alternative would involve relocation of the threatened mussel population to a site either below the dam reconstruction area downstream of Seeley lake or upstream of the affected lentic conditions, in order to alleviate potential benthic smothering or other disturbances caused during the destruction and channel manipulation occurring at the Emily A dam site. This method would be utilized with additional mussels exceeding the 1,500 individual transfer target count encountered within the occupied habitats between Emily-A Dam and Seeley Lake, with focus on a one-km distance downstream of the project area.

a) Advantage--A short distance intra-stream downstream or upstream translocation with no cross-stream contamination issues; similar water chemistry.

b) Disadvantage--No opportunity to establish new native mussel populations in restored stream reaches; unexpected silt/water quality problems occurring during the construction phase could feasibly impact the entire downstream population.

PART 2. ENVIRONMENTAL REVIEW CHECKLIST

Table 1. Potential impact on physical environment.

Will the proposed action result in potential impacts to:	Unknown	Potentially Significant	Minor	None	Can Be Mitigated	Comments Provided
1. Unique, endangered, fragile, or limited environmental resources		Positive outcome		X		Potentially significant and positive.
2. Terrestrial or aquatic life and/or habitats				X		If successful, the translocation could benefit terrestrial species that rely on mussels for forage.
3. Introduction of new species into an area				X		Western pearlshell mussel is native to the basin.
4. Vegetation cover, quantity and quality				X		
5. Water quality, quantity and distribution (surface or groundwater)				X		
6. Existing water right or reservation				X		
7. Geology and soil quality, stability and moisture				X		
8. Air quality or objectionable odors				X		
9. Historical and archaeological sites				X		
10. Demands on environmental resources of land, water, air & energy				X		
11. Aesthetics				X		

Table 2. Potential impacts on human environment.

Will the proposed action result in potential impacts to:	Unknown	Potentially Significant	Minor	None	Can Be Mitigated	Comments Provided
1. Social structures and cultural diversity				X		
2. Changes in existing public benefits provided by wildlife populations and/or habitat				X		The project is considered beneficial to native species.
3. Local and state tax base and tax revenue				X		
4. Agricultural production				X		
5. Human health				X		
6. Quantity and distribution of community and personal income				X		
7. Access to and quality of recreational activities				X		
8. Locally adopted environmental plans & goals (ordinances)				X		
9. Distribution and density of population and housing				X		
10. Demands for government services				X		FWP would monitor the mussels during periodic tributary fish population monitoring.
11. Industrial and/or commercial activity				X		

Comments

Unique, endangered, fragile, or limited environmental resources. Pearlshell mussels are increasingly rare in western Montana. This project would test whether populations can be reestablished in areas where they have been previously extirpated and determine what habitat conditions lead to successful reintroductions.

Terrestrial or aquatic life and/or habitats. If successfully reestablished, mussel could provide ecological benefits such as forage for terrestrial predators including otter, raccoon and muskrat.

Introduction of new species into an area (i.e., fish pathogens and unwanted organisms). Whenever any live aquatic organism is transported from one area to another, there is potential to spread fish pathogens and parasites. It must be assumed that whatever organisms are present on species to be moved, or present in the transport water, would be transported with that organism and released into the new water in which these organism would be placed.

In order to examine this concern, a fish health inspection was conducted in the winter of 2009-10 on 30 pearlshell mussels taken from the Clearwater River. Both the Montana Fish, Wildlife and Parks and the U. S. Fish and Wildlife Service Fish Health Center examined the sample of mussels for virus, bacterial pathogens and parasites. No abnormalities or evidence of disease parasites of any type were found nor were any lesions indicative of viral or bacterial infection seen in tissue sections.

Although no pathogens were identified, additional precautions would be taken prior to moving mussels to the new sites. First, the outside of the shells would be scrubbed with a stiff brush to clean off all visible foreign material (e.g., algae, sediment). Mussels would then be dipped in a mild (2%) bleach solution for about a minute before rinsing in freshwater.

All mussels would be transported in well or spring water, which would help reduce the possibility of moving unwanted organisms with the mussel transfers. Prior to translocation, mussels would be purged in freshwater for a minimum of 72 hours with water exchanges every 12-24 hours.

Introduction of Mussels Into a New Area. All mussel collections would be supervised by Montana Fish, Wildlife and Parks and the Montana Natural Heritage program.

Waters into which mussels would be placed have been identified and approved and appear to provide suitable conditions as described above.

Does the proposed action involve potential risks or adverse effects, which are uncertain but extremely harmful if they were to occur?

There are no known risks of spreading fish pathogens or other unwanted organisms, based on the scientific literature. Disease tests have detected no pathogens and additional precautions would be in place as described above. Furthermore, this is an intra-basin transfer with no physical barriers separating the donor from receiving sites.

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?

Potential risks associated with mussel transfers are considered in the proposed action. Although no risks were identified, the proposed plan mitigates potential risks through use of clean transport water and other precautions identified above.

PART 3. NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT

Based on the significance criteria evaluated in this EA, is an EIS required? No. Based upon the above assessment, which has identified no significant impacts for the proposed action, an EIS is not required and an environmental assessment is the appropriate level of review.

PART 4. PUBLIC PARTICIPATION

Scoping issues related to the western pearlshell mussel translocation project involved consultation and/or presentations with the affected landowners, the Seeley Lake Ranger District of the US Forest Service Lolo National Forest, US Fish & Wildlife Service, and Trout Unlimited.

Public notice of availability of the Environmental Assessment has been provided by submitting legal notices for publication once each in the *Blackfoot Valley Dispatch* (Lincoln), *Independent Record* (Helena), *Missoulian, Seeley Swan Pathfinder* (Seeley Lake), and *Silver State Post* (Deer Lodge) newspapers. Beginning April 30, 2010, the EA will be posted on the FWP website http://fwp.mt.gov/ (under "Recent Public Notices"). The EA or notice of its availability will be mailed (or notification of its availability will be emailed) to adjacent landowners and interested persons, groups and agencies. Copies may be obtained from or viewed at the Region 2 FWP office (address below).

The public comment period will begin April 30, 2010 and extend for 31 days following publication of the legal notice. Comments will be accepted by FWP until 5:00 p.m. on May 31, 2010, and should be mailed:

Ron Pierce
Montana Fish, Wildlife & Parks
Region 2 Headquarters
3201 Spurgin Road
Missoula, MT 59804-3101

Or emailed to rpierce@mt.gov

Or phoned to Ron Pierce at 406-542-5532.

Other groups or agencies contacted or which may have overlapping jurisdiction:

This project has the support of Montana Fish, Wildlife and Parks, The Nature Conservancy, University of Montana, Montana Chapter of the American Fisheries Society, Montana Trout Unlimited and cooperating private landowners. The project would be supervised by the Montana Fish, Wildlife and Parks biologist (Ron Pierce and Ladd Knotek) and the Montana Natural Heritage Program aquatic biologist (Dave Stagliano). Other groups expressing an interest in the outcome of this project include the USFWS, USFS and Turner Enterprises.

PART 5. EA PREPARATION

Ron Pierce and Ladd Knotek
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David Stagliano
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Date Completed: April 30, 2010

PART 6. LITERATURE CITED

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